

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: the specification discloses how Fig.7B is obtained by weighting of Fig.7A (pp.11, line 2-21), but there is not enough information how it is obtained. It should be clear if the constant values of equation 2 and what is the counting range of NUM_MBR (number of non-zero members).

Appropriate correction is required.

Claim Objections

2. **Claims 6 and 11** are objected to because of the following informalities: They recite "motion clocks". The examiner maintains that it is typographical error and it should be "motion blocks". Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. **Claims 4-6** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding **claim 4**, it recites "The method according to claim 2, further comprising the step of: applying a weighting function to each cell of said table". However, it is not clear what is the objective or the result of the weighting function. Therefore, it is indefinite.

Regarding **claims 5-6**, they are dependent on the claim 4. Therefore, they are rejected too.

Regarding **claim 5**, it recites "NUM_MBR is the number of its non-zero members". However, it is not clear in what region non-zero members are counted. For example, it could be counted among nearest neighbors or whole picture frame or some definite region surrounding the current 16x16 macroblock.

Regarding **claim 6**, it recites "accumulated number of motion blocks". However, it is not clear in how the block is determined as motion block or not.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. **Claims 1-4, and 6-11** are rejected under 35 U.S.C. 102(b) as being anticipated by Shimizu (US 6,512,537) , hereafter referenced as Shimizu.

Regarding **claim 1**, Shimizu discloses Motion Detecting Apparatus, Motion Detecting Method, and Storage Medium Storing Motion Detecting Program for Avoiding

Incorrect Detection. Shimizu specifically discloses A method for detecting motion (Fig.1) from a digital video stream (Video Signal, Fig.1) comprising the steps of: inputting the digital video stream (Video Signal, Fig.1) into an MPEG (Moving Picture Expert Group) encoder (MPEG Video Encoder 2, Fig.1); abstracting the relevant video motion detection data (Minimum Difference Sum-Total Area 82 and Zero Difference Sum-Total Area 83, Fig.3) from said digital video stream; estimating the amount of motion for each of the 16x 16-pixel macro-block (S52, Fig.5), from said abstracted video motion detection data ($AE0_{ij}$ and AE_{ij} , Fig.5) of a current image frame relative to the corresponding 16x 16-pixel macro-block of an image reference frame; and determining, from the estimated amount of motion, whether the current frame is a motion frame (S151, Fig. 15).

Regarding **claim 2**, Shimizu discloses everything claimed as applied above (see claim 1). Shimizu further discloses wherein said step of estimating comprises the steps of: calculating the Sum of Absolute Differences (SAD) (Sum-total of absolute luminance differences, col.8, line 29-30) for each 16x16-pixel macro-block (16x16 macroblock, col.7, line 51-52) of the current image frame relative to image reference frame; and placing the SAD values of every macro-block in a designated table (Minimum Difference Sum-Total Area 82 and Zero Difference Sum-Total Area 83, Fig.3).

Regarding **claim 3**, Shimizu discloses everything claimed as applied above (see claim 2). Shimizu further discloses wherein said SAD is defined as:

$$\text{SAD16}(xc, yc, xr, yr) = \sum_{ij=0..16} |C_{xc+i, yc+j} - C_{xr+i, yr+j}|;$$
 (Sum-total of absolute luminance differences, col.8, line 29-30);

where C is the current image and R is the reference image.

Regarding **claim 4**, Shimizu discloses everything claimed as applied above (see claim 2). In addition, Shimizu discloses further comprising the step of: applying a weighting function (weighting one and -1 to AE0 and AE1, S52, Fig.5), to each cell of said table.

Regarding **claim 6**, Shimizu discloses everything claimed as applied above (see claim 4). In addition, Shimizu discloses wherein said step of determining (S151, Fig.15) comprises the steps of: summing the cells of the SAD table (Adding notion macroblocks in the critical area according to S151, Fig.15); and if the accumulated number of motion clocks is larger than a pre-determined threshold value (At least one macroblock, S151, fig.15) designating said current image frame as a motion flame.

Regarding **claim 7**, Shimizu discloses everything claimed as applied above (see claim 1). In addition, Shimizu discloses further comprising the step of: calculating the Motion Vector (MV) (calculates motion vectors, col.8, line 43-44) for each of the 16x16-pixel macro- blocks of said image.

Regarding **claim 8**, Shimizu discloses everything claimed as applied above (see claim 1). In addition, Shimizu discloses further comprising the step of:

transferring the data associated with each of the motion frames together with the encoded video stream to a control center (Motion Detecting Apparatus 4, Fig.1) for further analysis.

Regarding **claim 9**, the claimed invention is an apparatus claim corresponding to the method claim 2 if claim 2 is written independent form. Therefore, it is rejected for the same reason as claim 2.

Regarding **claim 10**, the claimed invention is an apparatus claim corresponding to the method claim 6 if claim 6 is written independent form. Therefore, it is rejected for the same reason as claim 6.

Regarding **claim 11**, the claimed invention is an apparatus claim corresponding to the method claim 6 if claim 6 is written independent form. Therefore, it is rejected for the same reason as claim 6.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sugimoto (US 2002/0,118,862) discloses Moving Object Detection and Image Monitoring System. Zhao (US 2003/0,067,981) discloses Systems and Methods for Performing Bit Rate Allocation for a Video Data Stream.
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to HEE-YONG KIM whose telephone number is (571)270-3669. The examiner can normally be reached on Monday-Thursday, 8:00am-5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha Banks-Harold can be reached on 571-272-7905. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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